

LISTING OF THE CLAIMS

What is claimed is:

1-13. (Canceled)

14. (Withdrawn) A process for converting an organic liquor into a mixture of hydrocarbons and carbon solids, comprising:

heating the organic liquor to produce a mixture of liquid and vaporized oil;

converting the mixture of liquid and vaporized oil into carbon solids and a mixture of hydrocarbons and gases; and

separating the carbon solids from mixture of hydrocarbons and gases.

15. (Withdrawn) The process of claim 14 additionally comprising, after separating, cooling the carbon solids.

16. (Withdrawn) The process of claim 14 wherein the heating is carried out in a first stage and a second stage.

17. (Withdrawn) The process of claim 14 wherein the organic liquor is mixed with steam in the first stage.

18. (Withdrawn) The process of claim 14 wherein the converting is carried out in an auger.

19. (Withdrawn) The process of claim 14 additionally comprising, prior to heating, mixing the organic liquor with steam.

20. (Withdrawn) The process of claim 14 additionally comprising, after the cooling, storing the carbon solids.

21. (New) An apparatus for converting an organic liquor into carbon solids and a mixture of hydrocarbons, comprising:

a heater configured to receive and heat the organic liquor to produce a mixture of liquid and vaporized oil;

a reactor configured to receive and convert the mixture of liquid and vaporized oil into carbon solids and a mixture of hydrocarbon vapors and gases;

a first cooler for accepting the carbon solids; and

a second cooler for accepting the mixture of hydrocarbon vapors and gases.

22. (New) The apparatus of claim 21, wherein said reactor is an auger.
23. (New) The apparatus of claim 21, wherein said heater comprises a vessel defining a chamber and one or more tubes in the chamber to promote efficient heat exchange.
24. (New) The apparatus of claim 21, wherein said first cooler is an auger.
25. (New) The apparatus of claim 21, further comprising a storage system for accepting the carbon solids from the first cooler.
26. (New) The apparatus of claim 21, further comprising one or more preheaters in flow communication with the heater for heating the organic liquor prior to transfer of the organic liquor to the heater.
27. (New) The apparatus of claim 21, further comprising an air lock between the reactor and the first cooler.
28. (New) The apparatus of claim 25, further comprising an air lock between the first cooler and the storage system.
29. (New) The apparatus of claim 21, wherein the heater is further configured to accept steam.
30. (New) The apparatus of claim 21, wherein the second cooler additionally comprises a carbon particulate separator.
31. (New) The apparatus of claim 30, further comprising a first system in communication with the second cooler and the reactor and configured to convey residual carbon solids from the second cooler to the reactor.
32. (New) An apparatus comprising:
 - a heated vessel having an inlet and an outlet;
 - a first, heated auger having an inlet and an outlet, said inlet and outlet being configured and dimensioned to permit higher pressure to be applied in said first auger, said first auger inlet communicating with the vessel outlet;

a first fluid-solid separator communicating with the first auger outlet, said first separator having a first outlet for liquids and gases and a second outlet for solids; and

a second auger in communication with said solids, said second auger providing for cooling of said solids.

33. (New) The apparatus of claim 32, further comprising a condensor in communication with the first outlet.
34. (New) The apparatus of claim 32, further comprising a second separator in communication with the first outlet, said second separator having a third outlet for oil and a fourth outlet for fuel-gas.
35. (New) The apparatus of claim 32, further comprising a system in communication with the first outlet and the heated vessel, said system configured to convey the gases to the heated vessel.
36. (New) The apparatus of claim 34, further comprising a system in communication with the fourth outlet and the heated vessel, said system configured to convey the fuel-gas to the heated vessel.